

# ABSTRACT

A wavelength multiplex transmission system is provided to reduce crosstalk among wavelengths and  
5 reduce deterioration of signals. At a transmission apparatus, one input signal is differentially divided into two; each of the two is converted to an optical signal; and then they are wavelength-multiplexed and transmitted. When crosstalk is arisen in the  
10 wavelength multiplex transmission system, the crosstalk is superposed on the two optical signals. The crosstalk is equally superposed on each of the signals with inverted polarities. Accordingly, converting the optical signals to electrical signals  
15 and then differentially combining them at a receiving apparatus, their signal components are accumulated, while their crosstalk components are cancelled out. Thereby, in the wavelength multiplex transmission system, deterioration of optical signals due to  
20 crosstalk can be reduced.